

## Alternative Evaluation System

### Kissimmee Basin Modeling and Operations Study

**Alternative Evaluation System:** The Alternative Evaluation System is a grading system that can be consistently applied to alternative plan model output to calculate an alternative plan score. Alternative plan scores differentiate alternative plan performance using evaluation performance measures. Evaluation performance indicators provide an additional means for differentiating between alternatives by providing information related to study constraints and opportunities. The Alternative Evaluation System, as a whole, provides a systematic means for comparing alternative plans using a set of shared standards.

**Evaluation Performance Measures:** Evaluation performance measures define the hydrologic targets that are used to score and rank alternative plans. The evaluation performance measures for the KBMOS define the hydrologic conditions required to meet the natural resource requirements of water bodies controlled by Kissimmee Basin C&SF Project structures.

**Evaluation Performance Measures:** River evaluation performance measure targets were derived from the restoration criteria defined for the KRRP and analyses of pre-channelization data. Lake evaluation performance measure targets were derived from a combination of pre-regulation data, lake management and fish and wildlife literature and professional judgment. The Evaluation performance measures developed for the KBMOS are listed.

No.	Name
<b>River Evaluation Performance Measures</b>	
R-01	Kissimmee River Flow
R-02	Kissimmee River Stage Hydrograph / Floodplain Hydroperiod
R-03	Kissimmee River Stage Recession / Ascension
R-04	Kissimmee River Channel Velocity
<b>Lake Evaluation Performance Measures</b>	
L-01	Stages in Lakes Kissimmee, Hatchineha, and Cypress
L-02	Stages in Lake Tohopekaliga
L-03	Stages in Lake Gentry
L-04	Stages in Lakes Joel, Myrtle and Preston
L-05	Stages in East Lake Tohopekaliga, Fells Cove and Lake Ajay
L-06	Stages in Lakes Alligator, Brick, Lizzie, Coon, Center and Trout
L-07	Stages in Lakes Hart and Mary Jane

**Evaluation Performance Indicators:** Evaluation performance indicators are similar to evaluation performance measures except that they are not used to score and rank alternative plans. They provide additional information to help differentiate between alternative plans. There

are constraint indicators and opportunity indicators. Constraint indicators must be met. Opportunity indicators report information on whether conditions created by an alternative plan meet, improve or degrade a desired condition.

**Evaluation Performance Indicators:** No specific goals or targets were specified for the opportunity indicators. Opportunity indicator information is reported so that the relative differences between alternative plan opportunity indicator information can be compared and considered during the alternative selection process.

No.	Name	Indicator Type	Operating Objective
I-01	Probable High Lake Stages	Constraint	Flood Control
I-02	Kissimmee River Probable Flood Extents	Constraint	Flood Control
I-03	Lake Discharges and Stages for Hydrilla Management	Opportunity	Aquatic Plant Management
I-04	Water Supply for Consumptive Use	Opportunity	Water Supply
I-05	Kissimmee River Inflows to Lake Okeechobee	Constraint	Downstream Ecosystem
I-06	Stage Duration for Navigation and Recreation	Opportunity	Navigation/Recreation

**Performance Measure Evaluation Tool:** The Performance Measure Evaluation Tool implements the scoring calculation defined within the Alternative Evaluation System. The tool uses a series of scripts and macros in a spreadsheet shell to automate calculations and graphics from the screening, formulation and evaluation tools. The Performance Measure Evaluation Tool provides a standardized report for each alternative plan. The standardized report populates the alternative plan score card, along with evaluation component scores and other supplemental information described within the evaluation protocols for each of the evaluation performance measures and evaluation performance indicators.

### **Development and refinement of the Alternative Plan Selection Process tools**

Although some refinement activities did take place during tool development, the majority of the refinement activities took place during alternative plan screening. During tool development, key check-in points were identified to verify that the metrics defined in the performance measures and indicators could be simulated by the models and that the models could provide the necessary resolution to evaluate alternative plans. During alternative plan screening, model results from current and future base conditions and initial alternative plans were run through the Performance Measure Evaluation Tool. Interagency Study Team members were provided with preliminary results for each evaluation performance measures. These results included the Tier 1 components

that are used in the Alternative Evaluation System to calculate scores and the Tier 2 components that provide tabular and graphical output to assist in interpretation of model results. Refinement was carried out in association with the computer-aided participation workshops. The workshop provided Interagency Study Team and other participants the opportunity to share knowledge and insight.

The initial refinement activities focused on interpretation of the Tier 2 components and determining whether Tier 1 component scores seemed appropriate relative to the Tier 2 tabular and graphical output. The second phase of refinement focused on alternative plan performance and whether the evaluation component specifications and targets were appropriate relative to the resolution of the modeling results and the limitations and uncertainties of the data and modeling tools. Once Tier 1 component evaluations were completed, refinement activities focused on the scoring functions and weights used by the Alternative Evaluation System to calculate alternative plan scores. The two-way arrows shown in Figure 2 between performance measure refinement, Alternative Evaluation System and Performance Measure Evaluation Tool refinement and alternative plan screening represent the iterative process used to validate the screening tool, Evaluation performance measures and the Alternative Evaluation System components relative to one another.